




MICHIGAN Aviation

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**12TH ANNUAL AVIATION/AEROSPACE
TEACHER WORKSHOP**

OASIS AT LAN AFSS

WAAS APPROACHES



COMMISSION ACTION

The Michigan Aeronautics Commission met in Kalamazoo on September 15, 2004 and in Lansing on November 17, 2004.

Among items acted upon at the meetings was approval of airport improvements across the state. Some projects have federal, state, and local funding, while others are funded from state and/or local sources alone. Commission approval for federally funded projects authorizes state participation, subject to issuance of a federal grant. Federal and state dollars for airport development are primarily from restricted, user generated funds. The primary sources of revenue are aviation fuel and passenger taxes, as well as aircraft registration fees. Following are the approved projects:

September 15, 2004 Meeting

BENTON HARBOR

Southwest Michigan Regional Airport

\$5,555,555 to acquire land for a runway safety area and future extension of Runway 9/27. \$5,000,000 federal, \$277,778 state, and \$2,777,777 local.

\$125,000 for construction of a new terminal building roof. \$112,500 state and \$12,500 local.

CARO

Tuscola Area Airport

\$95,000 for the construction of security fencing. \$85,500 state and \$9,500 local.

CHEBOYGAN

Cheboygan County Airport

\$220,000 for the design of a partial parallel taxiway and for the purchase of snow removal equipment. \$198,000 federal, \$11,000 state, and \$11,000 local.

DETROIT

Willow Run Airport

\$5,202,866 for the removal of an abandoned runway and installation of new lighting. \$4,942,722 federal, \$114,848 state, and \$145,296 local.

FRANKFORT

Dow Memorial Airport

\$200,800 for land acquisition to eliminate a displaced threshold and improve approach protection. \$180,765 state and \$20,085 local.

HOWELL

Livingston County Airport

\$70,000 for consultant fees for land acquisition. \$66,500 federal, \$1,750 state, and \$1,750 local.

JACKSON

Jackson County-Reynolds Field

\$43,000 to install a groundwater monitoring well. \$38,700 state and \$4,300 local.

LANSING

Capital City Airport

\$526,316 for the construction of a perimeter road and improvements to the Runway 6/24 safety area. \$500,000 federal, \$13,158 state, and \$13,158 local.

MARQUETTE

Sawyer International Airport

\$1,389,474 hangar rehabilitation and design work for hangar insulation and electrical improvements. \$1,320,000 federal and \$69,474 local.

MASON

Mason Jewett Field

\$224,000 for the rehabilitation of the entrance road, parking lot, and a taxiway and for the replacement of the rotating beacon. \$211,360 federal, \$6,320 state, and \$6,320 local.

ROGERS CITY

Presque Isle County/Rogers City Airport

\$75,000 for land acquisition to remove and prevent approach obstructions. \$67,500 state and \$7,500 local.

ROMEO

Romeo State Airport

\$137,000 in state funds to repair hangar doors and to rehabilitate taxiways.

SANDUSKY

Sandusky City Airport

157,895 to relocate hangars. \$150,000 federal, \$3,947 state, and \$3,948 local.

SPARTA

Paul C. Miller-Sparta Airport

\$183,800 for land acquisition consultant costs necessary for the future lengthening of the runway. \$174,610 federal, \$4,595 state, and \$4,595 local.

TRAVERSE CITY

Cherry Capital Airport

\$3,405,034 to construct an airport rescue and firefighting/security building. \$2,172,400 federal, \$57,118 state, and \$1,175,516 local.

November 17, 2004 Meeting

ALLEGAN

Padgham Field

\$100,000 for an environmental assessment for a future runway extension project. \$95,000 federal, \$2,500 state, and \$2,500 local.

ANN ARBOR

Ann Arbor Municipal Airport

\$962,000 to rehabilitate taxiways. \$865,800 state and \$96,200 local.

BARAGA

Baraga Airport

\$100,000 for an environmental assessment for the future construction of a 3,500 foot paved runway. \$90,000 state and \$10,000 local.

BEAVER ISLAND

Beaver Island Airport - \$30,000 for tree clearing. \$27,000 federal, \$1,500 state, and \$1,500 local.

CHARLOTTE

Fitch H. Beach Municipal Airport

\$157,894 for land acquisition for future construction of a crosswind runway. \$150,000 federal, \$3,947 state, and \$3,947 local.

COLDWATER

Branch County Municipal Airport

\$65,000 for design work for the rehabilitation of Runway 6/24. \$61,750 federal, \$1,625 state, and \$1,625 local.

GRAND HAVEN

Grand Haven Memorial Airpark

\$92,593 for installation of an Automated Weather Observation System. \$83,334 state and \$9,259 local.

HOWELL

Livingston County Airport

\$725,000 for land acquisition for installation of an Instrument Landing System. \$688,750 federal, \$18,125 state, and \$18,125 local.

\$3,150,000 to relocate hangars. \$2,992,500 federal, \$78,750 state, and \$78,750 local.

\$625,000 for hangar area site preparation and paving. \$593,750 federal, \$15,625 state, and \$15,625 local.

IRONWOOD

Gogebic Iron County Airport

\$25,000 for a wildlife study. \$22,500 federal, \$1,250 state, and \$1,250 local.

\$6,500 for tree clearing near the VOR. \$5,850 state and \$650 local.

LUDINGTON

Mason County Airport

\$450,000 for animal control/security fencing. \$405,000 state and \$45,000 local.

MARLETTE

Marlette Township Airport

\$6,000 for pavement crack sealing and marking. \$5,400 federal, \$300 state, and \$300 local.

MONROE

Monroe Custer Airport

\$452,150 for upgrades to the airport electrical systems. \$421,209 federal, \$15,469 state, and \$15,472 local.

PLAINWELL

Plainwell Municipal Airport

\$1,600 for installation of radio-controlled lighting. \$1,440 state and \$160 local.

PONTIAC

Oakland County International Airport

\$1,157,895 to relocate hangars. \$1,100,000 federal, \$28,947 state, and \$28,948 local.

ROMEO

Romeo State Airport

\$92,593 for installation of an Automated Weather Observation System. \$83,334 state and \$9,259 local.

\$20,000 in state funds to replace a gas main.

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DIRECTOR'S DESK



● Rob Abent, Director
Michigan Aeronautics Commission

As 2004 gives way to 2005, I would like to highlight a few of our accomplishments during the past year. It is also appropriate that we use the events of the preceding year to help us plot a course for the coming months. In that spirit I'd like to devote a few paragraphs to sharing with readers some of those accomplishments as well as our plans for the new year.

In accordance with state law, policy which governs aeronautical activity in the state is set forth by the Michigan Aeronautics Commission. 2004 was marked by several changes to the commission. Mindy Koch joined the Commission as the Department of Natural Resources designate following the untimely death of long-time designee Guy Gordon. James Collins was appointed by Governor Granholm to fill the seat of Dean Greenblatt, whose term had expired in May. Commission Chair Sidney Adams, Jr. was reappointed to a second term, and Terry Everman was elected vice-chair. I look forward to another year of working closely with commissioners.

As we proceed with our various programs, we are mindful of three priorities set forth by Michigan Transportation Director, Gloria Jeff: preserve our current transportation resources, partner with other industry members, and obtain maximum federal funding.

AIR SERVICE PROGRAM

Michigan's Air Service Program seeks to help communities attract and retain air service at local airports. Following are some of the highlights of the program in 2004.

- **Air Carrier Recruitment and Retention** – Long term efforts to secure jet service at Muskegon County airport became a reality on June 10, 2004 with the first scheduled jet flight in over 25 years. The Air Service Program has assisted Muskegon County with \$50,000 to secure a federal grant to help small communities increase or maintain air service. Total federal funds are \$500,000 with a \$50,000 local match from Muskegon County.

Aviation staff provided support to the Alpena County airport throughout the application process and the Air Service Program is providing matching funds of \$50,000. The local community responded with a \$100,000 commitment (\$65,000 direct funding and \$35,000 in "in-kind" contributions). Improved services will start in April 2005, when Northwest Airlink adds a third flight dedicated exclusively to the Alpena market. To date, all flights have been on a shared routing with Sault Ste. Marie.

- **Airport Awareness** – Eleven airport awareness grants were issued during fiscal 2004 which totaled \$230,000. Funds were used to increase awareness within the local community of the available scheduled air service and airport facilities. Examples of approved projects include airport brochures at Ironwood and Pellston, flight schedules at Muskegon, and advertising at ice arenas in Marquette and Sault Ste Marie.
- **Capital Improvement and Equipment** – During fiscal year 2004, a call for projects was held and eight grants were issued. These totaled \$19,857. Approved projects included aircraft deice unit, upgrades to security systems, improved passenger holding and boarding areas to accommodate increased security, and acquisition of communication equipment. These grants require local participation.
- **Passenger Survey** – Scheduled airline passengers were surveyed at 16 air carrier airports during June and July of 2004. All airports were included except Detroit Metro. The passenger responses will be compared to 2002, 2000, and also to baseline 1998 data. The survey monitored changes in levels of customer satisfaction, trip destinations or purposes and passenger use of local airport(s).

This year's survey included questions from the Michigan Household Travel Project being conducted by MDOT. New questions included other Michigan communities visited and other modes of transportation used. Results are now being analyzed.

AIRPORT DEVELOPMENT AND LICENSING PROGRAMS

In fiscal 2004, more than 253 grants to Michigan airports were processed. This includes more than \$12 million in state funds and \$105 million in federal funds. During the same period of time, MDOT contracted for 55 new airport construction projects to enhance safety or to expand runway capacity. 78 percent of these projects can be attributed to preservation and the remaining 22 percent were capacity enhancement. Major airport projects for the past year include a new terminal building at Traverse City, a runway extension project at Holland, Tulip City which includes construction of an under-airport tunnel, and other runway projects at Fremont, Linden, East Tawas, South Haven, Sturgis, Clare Municipal, Bad Axe, and Grosse Isle.

Six Automated Weather Observing Systems (AWOS) were installed during the year resulting in more than 60 percent of Michigan airports achieving all-weather accessibility. Sites of 2004 installations are Caro, Frankfort, Owosso, Rogers City, South Haven, and Oakland Troy Airports.

ADDITIONAL ACCOMPLISHMENTS

- **Community Benefit Assessment Program** – Launched in 2004, this program provides an overview of the economic impact of an airport on the surrounding county. The economic assessment is broken down into three categories: jobs, income and output. To date there have been presentations of the Community Benefit Analysis in 15 counties around the state and more data is being added to the data base each month.
- **Vision 100** – MDOT Aeronautics worked hard to bring about the passage of the FAA reauthorization bill, "Vision 100." The bill contains an increase of \$400 million over the life of the bill, with Michigan receiving a larger percentage of federal funds than under previous FAA authorization bills.
- **Safety Seminars** – 42 pilot safety seminars were conducted throughout the state to provide recurrent training for pilots on issues designed to help aviators improve their skills, enhance their knowledge, and prevent accidents. Attendance at these seminars totaled over 3,000 people.

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INSTRUCTOR'S CORNER

By Tom Krashen

A NEW APPROACH

Very simply stated, an instrument approach is a procedure designed to allow pilots to safely descend from their en-route altitude to an altitude which will allow visual contact with the ground. Approach procedures are designed, charted, and published by the Federal Aviation Administration according to very specific guidelines. Interested readers can find these guidelines in FAA Order 8260.3B, *United States Standard for Terminal Instrument Procedures (TERPS)*.

For the past four decades, instrument pilots have learned and used three basic types of instrument approach procedures. ILS, VOR, and NDB approaches have been taught unfailingly to many generations of pilots. In recent years, a new type of navigation aid – Global Positioning System (GPS) – has revolutionized aviation. It is not much of an exaggeration to say that the advent of GPS represents as much of a technological evolution as that which occurred when celestial navigation became obsolete.

A VERY BRIEF REVIEW

Instrument approach procedures may be classified as either precision or non-precision. Precision approaches provide pilots with vertical, or glide path, guidance in addition to lateral guidance. Non-precision approaches provide only lateral guidance.

The only type of precision approach currently in widespread use is the Instrument Landing System (ILS). During execution of an ILS, the pilot follows a very accurate localizer signal that provides lateral guidance. At the same time, he or she descends by reference to an even more sensitive glide slope until reaching the published "Decision Altitude (DA)." At this altitude (which may be as low as 200 feet above the ground) the pilot must be able to satisfy three conditions. The runway or runway environment must be in sight, the flight visibility must be at or above that published, and a descent to the runway must be possible using normal maneuvers. If any of these conditions cannot be met, the pilot must abandon the approach. An ILS is a ground-based system since both the localizer and glide slope signal are transmitted from terrestrial antennas.

Non-precision approaches may be based on one of several different types of navigation aids. Two of the most common are Very High Frequency Omnidirections (VORs) and Non-Directional Beacons (NDBs). As with the Instrument Landing System, VORs and NDBs are ground-based. The technique for flying a non-precision approach differs from that for flying a precision approach in one very important aspect. Since no vertical guidance

is provided, upon reaching a designated "final approach fix," pilots descend to and maintain a predetermined "Minimum Descent Altitude" (MDA). If visual contact with the runway is not made before reaching a designated "missed approach point," the pilot must abandon the approach. The MDA will vary greatly with the specific approach but will never be as low as the typical 200-foot Decision Altitude allowed with an ILS.

GLOBAL POSITIONING SYSTEM

In recent years, GPS approaches have proliferated and are now nearly as common as VOR and NDB procedures. A couple of years ago, the FAA began titling new GPS approach procedures "RNAV (GPS)," indicating that they can be flown using either GPS-only equipment or multi-sensor Flight Management Systems (FMS).

The major difference with GPS navigation is that the system is entirely space-based. Other than runway lights and markings, there are no ground components to the system. GPS is based on a constellation of 24 orbiting satellites, each with a very accurate clock. Each satellite continuously transmits its time and position in space. Using the principal of triangulation, the GPS receiver is able to derive a position accurate to within a couple hundred feet. The unaugmented GPS signal, while accurate enough for en-route navigation and non-precision approaches, is not adequate for precision approach navigation.



NOTE: Numbers reference corresponding numbers on the OSH RNAV (GPS) RWY 36 above.

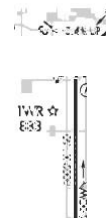
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RNAV (LATERAL NAVIGATION) 1

As indicated previously, the unaugmented GPS signal (like other non-precision approach aids) provides a level of accuracy suitable for lateral navigation only. Therefore, when executing these procedures, pilots descend to a published minimum descent altitude (MDA). This MDA is indicated on approach charts under the heading "RNAV."

RNAV/VNAV 2 (LATERAL/VERTICAL NAVIGATION)

Sophisticated multi-sensor Flight Management Systems (FMS) found in many corporate and airline airplanes include vertical navigation (VNAV) capability. Equipment of this type calculates, and displays to pilots, an electronically-generated descent path that provides a constant-rate descent to minimums (in this case, a Decision Altitude). In addition to receiving position data from GPS, flight management systems also have an input for barometric pressure from the airplane's flight data computer. This highly-accurate barometric data allows the FMS to internally calculate a glide path, thus providing vertical navigation (VNAV) on an approach. Consequently, this type of approach is sometimes called "Baro-VNAV." Approaches procedures with "RNAV/VNAV" minimums published are designed for aircraft with flight management systems capable of Baro-VNAV. Note that the RNAV/VNAV minimums are listed as a "Decision Altitude (DA)." Most popular GPS receivers installed in general aviation aircraft are NOT certified for RNAV/VNAV approaches.

APPROACH WITH VERTICAL GUIDANCE (APV)

APV refers to an "APproach with Vertical Guidance (other than an ILS)." The first of these approaches to be implemented by the FAA is the WAAS-enhanced GPS approach.

3 The WAAS, or Wide Area Augmentation System, uses ground reference stations and geosynchronous satellites to greatly increase the accuracy of the GPS signal. The WAAS signal has been available for over a year now and many non-aviation GPS receivers are WAAS compatible. However, manufacturers of approach-approved aviation GPS receivers have been a little slower to jump on the WAAS bandwagon. At this time only one receiver – the Garmin GNS 480 (previously the UPS Aviation Technologies CNX80) – includes the software necessary to make use of the WAAS signal. Both Garmin and Honeywell are promising software upgrades to their most popular receivers this year. FAA Technical Standard Order (TSO) C146 sets forth standards for WAAS-enhanced GPS receivers.

The relative sloth displayed by avionics manufacturers in introducing WAAS-capable receivers has not stopped the FAA from beginning to publish approaches. RNAV (GPS)

approaches which are WAAS enhanced can be identified by a unique WAAS channel number and reference plan indicator and by the presence of "LPV" in the minimums section. According to the FAA, LPV is not an acronym; however, pilots may find it helpful to remember it as "Lateral aPproach with Vertical guidance."

WHAT'S THE POINT?

With the proliferation of new types of approaches, it's very important that pilots are aware of the capabilities of their avionics equipment and what approach minimums they are authorized to use. As discussed above, GPS approaches may have up to four different sets of minimums published, depending on the type of equipment installed. From lowest to highest the minimums listed are LPV, RNAV/VNAV, RNAV, and Circling.

4 LPV – You may use these minimums only if your GPS receiver meets Class 3 or 4 requirements of FAA Technical Standard Order (TSO) C146. In other words, it must be certified for WAAS-enhanced approaches. A good rule of thumb is that if you're not sure if you can use LPV minimums, you can't.

2 RNAV/VNAV – As discussed above, these minimums are designed for FMS units with Baro-VNAV capability. This does NOT include popular GPS receivers such as the Garmin 430/530 or the Honeywell 89B/90B.

1 RNAV – These are the minimums that will be used by most pilots of general aviation aircraft for the time being. Unless your GPS receiver is WAAS capable, you are limited to using GPS for only lateral navigation (RNAV).

• Circling – Regardless of the type of navigation system being used, circle-to-land minimums must be used whenever landing is planned on a runway other than the one listed in the approach title.

It is of obvious importance that pilots become thoroughly familiar with their navigation equipment. Pilots must first be aware of the types of operations for which their equipment is approved. Secondly, they must become familiar with the operation of the unit. Unlike VOR and NDB receivers, each GPS unit is very different in operation. Pilots must invest significant time training in visual conditions with an instructor prior to attempting to use GPS for navigation in actual instrument conditions. Most avionics manufacturers also have developed computer-based simulators for their GPS receivers.

Director's Desk Continued from page 3

- **Aviation/Aerospace Teacher Workshop** is designed to help teachers incorporate aviation and aerospace concept into their classrooms. This year's workshop (our 11th annual) on May 22, 2004 was sold-out with 200 teachers, plus about 40 staff and presenters. Planning is underway for the 2005 workshop on Saturday, May 21.
- **Periodical Development & Distribution** – *Michigan Aviation*, our quarterly safety publication, features articles on myriad safety issues as well as Aeronautics Commission news. It is sent to each of Michigan's 18,000 pilots.
- **Inspections** – Staff inspected 150 public-use airports, five public-use heliports, 20 hospital heliports and 67 flight schools.
- **Registrations** – We registered approximately 7,000 aircraft, 80 flight schools, and 225 aircraft dealers.
- **Publications** – We continue to publish the popular *Michigan Airport Directory* and *Michigan Aeronautical Chart*. A copy of the chart is mailed free of charge to each of Michigan's 18,714 pilots. The airport directory is provided to owners of registered aircraft.
- **Permits** – Staff reviewed 1,258 Tall Structure permit applications.
- **Land Use Zoning** – The Michigan Aeronautics Commission approved airport compatible land use zoning approach plans for three airports in Michigan.

GOALS FOR 2005

In the coming year we look forward to continuing to provide the excellent service our customers have come to expect. Many of our ongoing programs will continue into 2005. Airport inspections, safety seminars, air service, all weather access, publication of the aeronautical chart and airport directory, and tall structure and zoning review are some of these programs.

Airport development projects are among our most visible and complex activities. Some projects span several years in planning and preparation before any concrete is poured. In fiscal 2005, anticipated capital outlay funding for airport improvements include \$19 million in state funds, \$160 million in federal funds, and \$22.8 million in local matching funds. Availability of this money will allow work to proceed on some highly anticipated projects across the state.

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AVIATION INFORMATION

The Transportation Security Administration (TSA) has issued a clarifying "interpretation" of its controversial rule related to flight schools and flight instructors. As readers may recall, the TSA announced a rule late last year which required all flight schools and flight instructors to verify the citizenship of prospective students. Non-US nationals are required to undergo a background check by TSA prior to beginning flight training. Additionally, the rule requires all flight instructors to undergo security awareness training.

The recent interpretation by the TSA specifies that for the purposes of this rule training is defined as that which a student could use toward "his or her initial airman's certificate of any type, multi-engine rating, or instrument rating." This does not include aircraft check-outs, flight reviews, or instrument proficiency checks. Here is a quick synopsis of the rule as it applies to training in aircraft with a gross weight of less than 12,500 pounds.

- U.S. citizens must prove their citizenship before beginning training for a private, commercial, or airline transport certificate, instrument rating, or multiengine rating.
- Certified Flight Instructors must take TSA's security awareness training by January 18. They must check that all potential students are U.S. citizens or have proper TSA clearance before beginning primary, instrument, or multiengine instruction in an aircraft under 12,500 pounds. They must make a logbook entry confirming that the necessary checks have been made. Prior to teaching a student who is not a U.S. citizen, CFIs must register with TSA. Security awareness training may be completed online at <http://download.tsa.dhs.gov/fssa/training/>.
- Resident aliens must receive TSA clearance before beginning primary, instrument, or multiengine training in an aircraft under 12,500 pounds.

The Aircraft Owners and Pilots Association has begun including security awareness training in their flight instructor refresher courses. AOPA is also an excellent source of additional information about the rule. Their web site is www.aopa.org.

We continue to receive many inquiries from pilots regarding new instrument approach procedures. GPS technology has made it much more affordable to obtain a GPS-based instrument procedure at your local public-use airport. Previously, instrument approaches may not have been feasible for many smaller airports due to the absence of NAVAIDS or real estate in which to place NAVAIDS, however GPS has changed all that. The process itself is

relatively simple. By far, the most demanding part of the process is obtaining an acceptable airport/area survey. Some airports will not be eligible for an approach without first clearing obstructions in the approach area. In theory, anyone can request that an approach be developed for an airport, but because of the number of requests submitted, we are only accepting requests that come directly from an airport manager. Therefore, please coordinate with your manager if you are interested in requesting an approach at a specific airport.

The Michigan Aviation Hall of Fame inducted four individuals at the organization's annual enshrinement ceremony on October 2, 2004 in Kalamazoo. Robert L. Hall, Carl Squier, William E. Gehman, and Donald R. McMonagle were honored for their lifelong contributions to aviation. Additionally, the "General Arthur P. Tesner Spirit of Flight Award" was presented to the Volunteer Mercy Pilots.

William E. Gehman was born and raised in Michigan and was head of the Michigan Bureau of Aeronautics from 1985 until 2002. A graduate of Western Michigan University and a licensed commercial pilot, Gehman planned, designed, and built more than 30 airports in Michigan and Ohio between 1965 and 1972. Under his leadership, the Michigan Airport Development Program provided between \$40 million and \$120 million in funding for capital projects at more than 100 airports in the state. During his directorship, many programs to promote aviation were started. In 1989, he received the President's National Award from the American Association of State Highway Transportation Officials for his innovative programs to improve air service. He is currently chairman of the National Association of Aviation Officials Center for Aviation Research and Education.

Robert L. Hall was born in Taunton, Massachusetts in 1905. He attended Harvard, but transferred to the University of Michigan, from which he graduated in 1927. Two years later he earned his pilot's license and joined Granville Brothers. His first design was the Gee Bee, which became the best racing plane ever designed. In 1933, Hall became a test pilot for Stinson in Wayne, Michigan, where he collaborated on the gull wing Stinson Reliant. He was hired as an engineer and test pilot by Grumman in 1936 and worked on the F4F Wildcat, the TBF Avenger, the SP50, F6F Hellcat, F7F Tigercat, F8F Bearcat, F9F Panther, Gulfstream I, XF10F, and the F11F Tigers. He died on February 25, 1991.

Carl Squier, born in Decatur, Illinois on April 17, 1893, was the 13th licensed pilot in the United States. He attended the University of Michigan and joined the Army Signal Corps in 1916. He got his flight training at Selfridge Field and became a command pilot in the 90th U.S. Aero Squadron. While serving in France in World War I he was awarded the Croix de Guerre and was promoted to captain. After the war, he became a test pilot and flew 22 different types of aircraft. Later, while employed by Lockheed, he sold Vegas to Amelia Earhart and Wiley Post, an Orion to Charles Lindbergh, a Model 14 to Howard Hughes, and the Constellation to Pan-Am Airlines. He died in 1967.

Donald R. McMonagle was born in Flint, Michigan in 1952 and graduated from the U.S. Air Force Academy in 1974. He flew F-4s over Korea for a year before becoming an F-15 instructor at Luke Air Force Base. He was the outstanding graduate in his class at USAF Test Pilot School and was operations officer and project test pilot for the advanced fighter technology integration F-16 aircraft. He was selected as an astronaut in 1987 and has logged more than 605 hours of space flight during three missions. McMonagle was a mission specialist aboard Discovery during STS-39 in 1991, piloted Endeavor during STS-54 in 1993 and commanded Atlantis during STS-66 in 1996. He currently is manager of launch integration for the Space Shuttle program at Kennedy Space Center.

The Volunteer Mercy Pilots began in 1981 as a small group of mid-Michigan pilots who flew medical support flights for people who could not afford commercial airline tickets. Their mission is to insure that no one is denied lifesaving treatment because they cannot afford the cost of travel. In 1990 an alliance was formed with similar organizations nationwide. The group is often referred to as "Angels" because there is no cost to patients. All costs for administration and flight expenses come from donations. To date the Mercy Pilots have flown over 5,000 hours and are credited with many life-saving missions. Only highly-qualified pilots are selected as Mercy Pilots. There is a stringent screening process and firm safety guidelines that all candidates must follow.

OASIS ARRIVES AT THE LANSING AUTOMATED FLIGHT SERVICE STATION

By Dave Durkee,
Lansing Automated Flight Service Station



● Dave Durkee

The summer of 2004 brought major changes to the Lansing Automated Flight Service Station (LAN AFSS). LAN became the 16th AFSS in the nation to receive the Operational and Supportability Implementation System (OASIS) from Harris Corporation of Melbourne, Florida. This hardware and software installation replaces the aging "Model 1" system installed in the early 1980's.

OASIS is an integrated system, which combines weather briefing and flight planning into one workstation. This workstation consists of a Personal Computer and two 20-inch digital flat screen monitors. The briefer uses one display for flight planning and the other display for weather and satellite data based on that flight plan. The flight planning software is called Weather Information Navigation Graphics Systems (WINGS). The other display is running software called Weather Information Network Display (WIND). Working together, these programs take the flight planning data entered by the specialist and display it by overlaying it on any one of over one thousand charts and satellite images. All displays on the WIND display are updated continuously so the pilot is assured of getting the very latest information.

When entering flight plan information into the WINGS application, the software checks and validates the type of aircraft, so no more PA28, it is a P28A (140 to 181), P28B (201T to 236), P28R (Arrow or Turbo Arrow III) or P28T (Turbo Arrow IV). Any valid aircraft identification can be used. Many homebuilt aircraft have identifiers, such as Breezy, (RLU1), Rutan Proteus (PRTS), Pitts Special (PTS1), and Glass Goose (GOOS). Others are grouped into general categories such as Balloons (BALL), Ultralight/Microlight Helicopters (UHEL) and Ultralight/Microlight Aircraft (ULAC). It checks for a proper equipment suffix code, and verifies the route. One of the many help screens even will enter a "preferred route"

into the flight plan if asked to. These routes are taken directly from the Airport/Facility Directory (A/FD) and are updated every 56 days. International, or ICAO, flight plans are also handled by OASIS, unlike the old Model 1 computer. If the pilot has the Flight Identification Region (FIR) boundary crossing times as required, the flight plan takes no other special handling by the specialist. Search menus can find airport identifiers, latitudes and longitudes, city names, and airport information never before available without grabbing "the book." In WINGS, requesting a route briefing brings up a screen with up to twenty-five tabbed pages of text, which if printed would amount to over one hundred pages of data! The briefer moves thru these tabs as needed, and provides the pilot with what they need for a safe flight. This data is received via high-speed dedicated data lines.

On the other display, WIND, the briefer has his or her choice of any of the many charts and maps including all NEXRAD and GOES images. The proposed route of flight is displayed on

many of these charts, giving the briefer a clear view of how weather, restricted airspace, or the infamous TFR's will affect this flight. Using the mouse in a "flyover" mode, the briefer can identify airways, fixes and nav aids along the route. This will also show current weather conditions, forecasts, and center and sector boundaries. SIGMETs, AIRMETS, Center Weather advisories and Severe Weather watches and warnings are also graphically depicted.

Data for the WIND display comes from two different satellite uplinks which are combined in servers located at the LAN AFSS. With the data link and the satellite downlinks, we are getting data from two independent sources, making outages less likely.

OASIS even provides a portable remote workstation, which can be used at special events, such as the recent Great Lakes International Aviation Conference. Pilots are invited to visit us anytime at the AFSS located at Capital City Airport for a personal demonstration.

About the author:

Dave Durkee grew up in the Lansing area, and graduated from East Lansing High School in 1959. Dave is a private pilot, and has been a pilot weather briefer at LAN FSS/AFSS since 1974. He served in U.S. Air Force in the AC&W field. After joining the FAA, he worked at Chicago Center, and Lansing Tower. He is currently one of the 6 OASIS trainers at LAN AFSS.



● Lansing AFSS specialist, Neal Mathisen at one of the in-flight briefing consoles.

Photos by Tim Burke, MDOT Photo Lab

Director's Desk continued from page 5

Some of the noteworthy projects planned for 2005 include:

- Construction of a new terminal building at Kalamazoo
- Runway extension projects at Lansing, Detroit Metro, Holland Tulip City, and Adrian
- Construction of a new runway at Howell
- Reconstruction of the general aviation ramp at Grand Rapids
- Runway rehabilitation projects at Coldwater, Owosso, Lapeer, and Three Rivers
- Land acquisition at Benton Harbor, Howell, Muskegon, and Detroit City

- Noise mitigation projects at Detroit Metro and Pontiac
- Three new AWOS installations are planned at Drummond Island, Romeo, and Three Rivers

Finally, I would like to express my personal thanks to members of the aeronautics commission, aeronautics staff, and our many partners including airport managers and sponsors, consultants, air carriers, pilots and maintenance technicians, and others for their contributions to making 2004 a success. As we plan for 2005 and beyond, I will rely on these same partners to insure that Michigan's air transportation system remains second to none.

Commission Action

Continued from page 2

SPARTA

Paul C. Miller-Sparta Airport

\$30,000 to replace the Runway End Identifier Lights. \$27,000 federal, \$1,500 state, and \$1,500 local.

\$5,000 to replace the rotating beacon.
\$4,500 state and \$500 local.

STATEWIDE

\$15,000 in state funds to purchase windsocks, runway cones, and locks for various airports.

THREE RIVERS

Three Rivers Municipal, Dr. Haines Airport - \$92,593 for installation of an Automated Weather Observation System. \$83,334 state and \$9,259 local.

Jennifer Granholm, Governor

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12TH ANNUAL AVIATION AEROSPACE TEACHER WORKSHOP

On Saturday, May 21, 2005, the Michigan Department of Transportation will host the 12th Annual Aviation/Aerospace Teacher Workshop. The workshop is a unique opportunity for educators, at all grade levels, to explore ways aviation and aerospace can be incorporated into classroom activities.

The workshop will be conducted by teachers, for teachers. Participants will have an opportunity to interact with other educators, as well as aviation professionals, who will present seminars on a variety of subjects. A wide range of information and materials will be provided as part of the registration fee, including aerospace curricula, career information, and resource guides. The program also qualifies toward the fifteen days of professional development credit required of probationary teachers.

A vast resource center that includes a selection of classroom aids, curricula, career guides, and industry promotional materials will be available. As a special feature, the workshop will include the opportunity to take an actual introductory flight (weather permitting) with a certified flight instructor. Finally, door prizes will be awarded throughout the day, including many fine aircraft models. This year's grand prize will be two free domestic tickets from AirTran Airways.

The morning general session will feature two outstanding speakers. Col. Michael Bloomfield, of Lake Fenton, Michigan, has been an astronaut since being selected by NASA in 1994. He is a veteran of three space flights and has logged 753 hours in space. He is currently the Chief Instructor Astronaut. Prior to that assignment, he worked as the Chief of Safety for the Astronaut Office. Rico Racosky is a captain

with Southwest Airlines, former F-16 fighter pilot, motivational speaker, and author. His success formula *dreams + action = reality*® has shown students across the nation how positive action can lead to a lifetime of success.

In the afternoon, a variety of breakout sessions will be presented, including the opportunity to take an introductory flight around the Lansing area. Aviation/aerospace concepts, presented at previous workshops, have proven to be highly successful in helping students to set goals, build self-esteem, and establish habits for success. The emphasis is on the practical application of science, math, reading, geography, and other subjects. Teachers will be given materials for immediate classroom use.

Cost for the entire day is \$40.00, which includes lunch and all resource materials. Additional information and registration is available on our web site at www.michigan.gov/aero. You may also register by phone or mail by contacting

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